

ABSTRACT

A water treatment system for treating coal-bed-methane (CBM) water. The CBM water treatment system includes a pump system for pumping CBM water from one or many CBM wells into a common reservoir and a solid-based sulfurous generator that produces aqueous sulfurous acid to treat the CBM water and an injection system that increases the amount of calcium contained in CBM water. In one embodiment, the injection system is a gypsum injector that injects soluble gypsum into the CBM water. Moreover, in one embodiment, the solid-based sulfurous generator includes a hydraulic air inlet shut off valve safety system for automatically reducing the combustion air to the sulfurous generator when water is not delivered to the solid-based sulfurous generator. Also, in one embodiment, the water treatment system includes a control system that monitors the pH of the treated water to control the water flow rate through the solid-based sulfurous generator to achieve the desired concentration of sulfurous acid in the CBM water being treated.